

**Montana Board of Oil and Gas Conservation  
Environmental Assessment**

**Operator:** Anschutz Exploration Corporation

**Well Name/Number:** Southwest Browning 1-35H-32-11

**Location:** NW SW Section 35 T32N R11W

**County:** Glacier, **MT;** **Field (or Wildcat)** W/C

**Air Quality**

(possible concerns)

Long drilling time: No 30 to 40 days drilling time.

Unusually deep drilling (high horsepower rig): Yes, triple derrick drilling rig for a vertical pilot hole to be drilled to 9250' TD, Rierdon Formation, prior to plugging back with cement and drilling a 11,725'MD/6,250'TVD horizontal hole. Formation at total depth is the Cone Formation.

Possible H2S gas production: Possible H2S anticipated on the vertical pilot hole, will cut Mississippian aged rocks in several thrust plates. None anticipated in the horizontal lateral in the Cretaceous Cone formations.

In/near Class I air quality area: Yes, Class I air quality area, Blackfeet Reservation.

Air quality permit for flaring/venting (if productive): Yes, DEQ air quality permit required under 75-2-211.

Mitigation:

☒ Air quality permit (AQB review)

☐ Gas plants/pipelines available for sour gas

☐ Special equipment/procedures requirements

☐ Other: \_\_\_\_\_

Comments: Triple derrick drilling rig to drill a vertical pilot hole to be drilled to 9250' TD, Rierdon Formation, prior to plugging back with cement and drilling a 11,725'MD/6,250'TVD horizontal hole horizontal lateral in the Cone Formation. Drilling from a surface location in the NW SW section 35 T32N R11W to a bottom hole location in the NW SW section 26 T32N R11W.

**Water Quality**

(possible concerns)

Salt/oil based mud: Yes, will use an oil based invert drilling fluids from under surface casing to total depth. Horizontal lateral will be drilled with oil based invert drilling fluids. Freshwater and freshwater mud system will be used on drilling surface hole.

High water table: Possible high water table. Surface appears to be in glaciated prairie pothole country.

Surface drainage leads to live water: Yes, prairie pothole, about 1/16 of a mile to the south from this location. Closest drainage is an unnamed ephemeral tributary drainage to Willow Creek, about ¼ of a mile to the north northwest from this location.

Water well contamination: No water wells within a 1 mile and further radius from this well location. Surface casing hole will be drilled with freshwater to 1000'. Steel surface casing will be run and cemented to surface from 1000' to protect ground waters.

Porous/permeable soils: Yes, rocky sandy silty clay soils.

Class I stream drainage: Closest Class I stream drainage is Willow Creek, about 5 miles to the north from this location.

Mitigation:

- ☒ Lined reserve pit
- ☒ Adequate surface casing
- ☐ Berms/dykes, re-routed drainage
- ☒ Closed mud system
- ☒ Off-site disposal of solids/liquids (in approved facility)
- ☐ Other: \_\_\_\_\_

Comments: 1000' of surface casing cemented to surface adequate to protect freshwater. Also, fresh water mud systems to be used on surface hole.

### Soils/Vegetation/Land Use

(possible concerns)

Stream crossings: None anticipated.

High erosion potential: No, small cut, up to 9.6' and small fill required up to 2.1', required.

Loss of soil productivity: No, location will be restored after drilling, if nonproductive. If productive unused portion of drillsite will be reclaimed.

Unusually large wellsite: No, large, 400'X400' location size required.

Damage to improvements: Slight, surface use is grassland.

Conflict with existing land use/values: Slight

Mitigation

- ☐ Avoid improvements (topographic tolerance)
- ☐ Exception location requested
- ☒ Stockpile topsoil
- ☐ Stream Crossing Permit (other agency review)
- ☒ Reclaim unused part of wellsite if productive
- ☐ Special construction methods to enhance reclamation
- ☒ Other: Requires DEQ General Permit for Storm Water Discharge Associated with Construction Activity, under ARM 17.30.1102(28)

Comments: Using existing county gravel road, Heart Butte Road. Will built new access road and upgrade an existing access road into this location, approximately 6, 428'. Freshwater drilling fluids and cuttings will be allowed to dry in the pit. A closed loop drilling mud system will be used with the oil based drilling fluids from under surface casing to total depth. Oil based drilling fluids will be recycled back to the drilling fluid company. Oil based drill cuttings will be solidified with a Soli-Bond Process and buried in a separate lined pit from the water based cuttings. Pits will be backfilled when dry.  
No special concerns

### Health Hazards/Noise

(possible concerns)

Proximity to public facilities/residences: There are no residences within a 1 mile radius of this wellsite. The town of Browning, Montana is about 4.25 miles to the north of this location.

Possibility of H<sub>2</sub>S: Possible H<sub>2</sub>S anticipated on the vertical pilot hole. None anticipated in the horizontal lateral in the Cretaceous Cone formations.

Size of rig/length of drilling time: Triple derrick drilling rig to drill for about 30 to 40 days drilling time.

Mitigation:

- ☒ Proper BOP equipment
- ☐ Topographic sound barriers

- ☐ H2S contingency and/or evacuation plan
- ☐ Special equipment/procedures requirements
- ☐ Other: \_\_\_\_\_

Comments: No concerns. Surface casing and BOP configurations should be able to control any problems that could occur.

### **Wildlife/recreation**

(possible concerns)

Proximity to sensitive wildlife areas (DFWP identified): None, identified

Proximity to recreation sites: Glacier National Park boundary is about 13 miles to the west from this location.

Creation of new access to wildlife habitat: No, private surface lands.

Conflict with game range/refuge management: No, private surface lands.

Threatened or endangered Species: Species identified as threatened or endanger in Glacier County are Grizzly Bear, Gray Wolf, Canada Lynx and Bull Trout. NH Tracker website lists one (1) species identified as species of concern: Long-billed Curlew.

Mitigation:

- ☐ Avoidance (topographic tolerance/exception)
- ☐ Other agency review (DFWP, federal agencies, DSL)
- ☐ Screening/fencing of pits, drillsite
- ☐ Other: \_\_\_\_\_

Comments: Private surface grassland. There maybe species of concern that maybe impacted by this wellsite. We ask the operator to consult with the surface owner as to what he would like done, if a species of concern is discovered at this location. The Board of Oil & Gas has no jurisdiction over private surface lands.

### **Historical/Cultural/Paleontological**

(possible concerns)

Proximity to known sites None identified.

Mitigation

- ☐ avoidance (topographic tolerance, location exception)
- ☒ other agency review (SHPO, DSL, federal agencies)
- ☐ Other: \_\_\_\_\_

Comments: Private surface grassland. There maybe possible historical/cultural/paleontological sites that maybe impacted by this wellsite. We ask the operator to consult with the surface owner as to his desires to preserve these sites or not, if they are found during construction of the wellsite. The Board of Oil & Gas has no jurisdiction over private surface lands.

### **Social/Economic**

(possible concerns)

- ☐ Substantial effect on tax base
- ☐ Create demand for new governmental services
- ☐ Population increase or relocation

Comments: Rank wildcat well. Social and economic impacts are unknown at this time.

### **Remarks or Special Concerns for this site**

Well is a horizontal Cretaceous Cone Formation horizontal hole 11,725'MD/6,250'TVD.  
Vertical pilot hole will be drilled to 9250' Total Depth.

**Summary: Evaluation of Impacts and Cumulative effects**

No long term impacts expected. Some short term impacts will occur.

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I conclude that the approval of the subject Notice of Intent to Drill (does/**does not**) constitute a major action of state government significantly affecting the quality of the human environment, and (does/**does not**) require the preparation of an environmental impact statement.

Prepared by (BOGC): \s\Steven Sasaki  
(title:) Chief Field Inspector  
Date: December 15, 2011

Other Persons Contacted:

Montana Bureau of Mines and Geology, GWIC website  
(Name and Agency)  
Glacier County water wells  
(subject discussed)  
November 18, 2011  
(date)

US Fish and Wildlife, Region 6 website  
(Name and Agency)  
ENDANGERED, THREATENED, PROPOSED AND CANDIDATE SPECIES  
MONTANA COUNTIES, Glacier County  
(subject discussed)  
November 18, 2011  
(date)

Montana Natural Heritage Program Website (FWP)  
(Name and Agency)  
Heritage State Rank= S1, S2, S3 T32N R11W  
(subject discussed)

November 18, 2011  
(date)

If location was inspected before permit approval:  
Inspection date: \_\_\_\_\_  
Inspector: \_\_\_\_\_  
Others present during inspection: \_\_\_\_\_